

WHAT IS CLAIMED IS:

1. A power supply apparatus for a vehicle slide door,  
comprising:

a cable installed between a vehicle body and a slide door;

5 and

a cable guide for guiding the cable, the cable guide  
comprising a plurality of link members interconnected into a  
linear configuration;

wherein the cable guide includes a first section and a  
10 second section, the first section capable of being bent in a  
predetermined direction from a generally linear condition, the  
second section capable of being bent in an opposite direction  
opposite to the predetermined direction from a generally linear  
condition.

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2. The power supply apparatus for a vehicle slide door  
according to claim 1, further comprising:

a first support member provided at the vehicle body,  
supporting one end portion of the cable guide in such a manner  
20 that the one end portion is directed toward the slide door in  
non-parallel relation to a direction of sliding movement of  
the slide door; and

a second support member provided at the slide door,  
supporting the other end portion of the cable guide, the second  
25 support member capable of moving to pass by the first support

member in accordance with the sliding movement of the slide door;

wherein the first section is disposed at the vehicle body, and a second section disposed at the slide door;

5 the first section can be bent in both of the predetermined direction and the opposite direction from the generally linear condition; and,

in accordance with the sliding movement of the slide door, the cable guide extends away from the vehicle body, and is bent  
10 at the first section to extend toward the second support member.

3. The power supply apparatus for a vehicle slide door according to claim 2,

wherein

15 the cable guide can be bent and deformed between a first bending condition and a second bending condition, in accordance with the sliding movement of the slide door;

in the first bending condition, the cable guide extends away from the vehicle body and further extends generally linearly  
20 toward the second support member; and,

in the second bending condition, the cable guide extends away from the vehicle body, and further is inverted into a generally J-shape to extend toward the second support member.

25 4. The power supply apparatus for a vehicle slide door

according to claim 3,

wherein, in the first bending condition, the first support member supports the one end portion of the cable guide in such a manner that the one end portion is inclined away from the second support member relative to a direction perpendicular to the direction of sliding movement of the slide door.

5. The power supply apparatus for a vehicle slide door according to claim 2,

10 wherein a bending angle of each interconnecting portion between the link members of the first section is determined such that the cable guide does not interfere with any member provided at the vehicle body.

15 6. The power supply apparatus for a vehicle slide door according to claim 2,

wherein the first section includes a section having the plurality of link members so interconnected as to be bent only in one direction from the linear condition, and a section having the plurality of link members so interconnected as to be bent in both directions from the linear condition.

7. The power supply apparatus for a vehicle slide door according to claim 2,

25 wherein the cable guide is covered with a flexible tube

member of a tubular shape.

8. The power supply apparatus for a vehicle slide door according to claim 1,

5 wherein

bending directions of interconnecting portions in each of the first and second sections are set to the same direction;

the bending direction of each interconnecting portion in the first section is opposite to the bending direction of  
10 each interconnecting portion in the second section; and,

during the sliding movement of the slide door, an intermediate portion of the cable guide in the longitudinal direction can be bent into a generally S-shape when viewed from the top.

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9. The power supply apparatus for a vehicle slide door according to claim 8,

wherein each of the link members has a generally tubular shape so that the cable can be passed through the link member;

20 and

the cable is passed through the cable guide to be installed.

10. The power supply apparatus for a vehicle slide door according to claim 9,

25 wherein the link member includes:

a body portion of a generally tubular shape;  
projections which are formed respectively on opposed side walls of one end portion of the body portion and which function respectively as rotation shafts;  
5 reception portions provided respectively at opposed side walls of the other end portion of the body portion such that axes of the reception portions are parallel to axes of the projections of the mating link member to be connected to the link member, the projections being fitted into the reception  
10 portions to be rotatably supported;  
a first abutment portion formed at the one end portion of said body portion; and  
a second abutment portion formed at the other end portion of the body portion to abut against the first abutment portion  
15 of the mating link member thereby limiting the rotation range of the mating link member.

11. A cable guide for guiding a cable installed between a fixing structure and a moving structure, comprising:  
20 a plurality of link members interconnected into a linear configuration;  
wherein the cable guide includes a first section and a second section, the first section capable of being bent in a predetermined direction from a generally linear condition, the  
25 second section capable of being bent in an opposite direction

opposite to the predetermined direction from a generally linear condition.

12. The cable guide according to claim 11,

5 wherein

the plurality of link members are mutually connected by interconnecting portions;

a bending direction of each of the interconnecting portions is so limited that one of any two adjacent  
10 interconnected link members is allowed to be bent relative to the other link member only in one direction from a linearly-extending condition;

the bending directions of the interconnecting portions in each of the first and second sections are set to the same  
15 direction;

the bending direction of each interconnecting portion in the first section is opposite to the bending direction of each interconnecting portion in the second section; and,

during the sliding movement of the moving structure, an  
20 intermediate portion of the cable guide in the longitudinal direction can be bent into a generally S-shape when viewed from the top.

13. The cable guide according to claim 12, wherein each of  
25 the plurality of link members has a generally tubular shape

so that the cable can be passed through the link member; and  
the cable is passed through the cable guide to be installed.

14. The cable guide according to claim 13,  
5 wherein each of the plurality of linear members includes:  
a body portion of a generally tubular shape;  
projections which are formed respectively on opposed side  
walls of one end portion of the body portion and which function  
respectively as rotation shafts;  
10 reception portions provided respectively at opposed side  
walls of the other end portion of the body portion such that  
axes of the reception portions are parallel to axes of the  
projections of the mating link member to be connected to the  
link member, the projections being fitted into the reception  
15 portions to be rotatably supported;  
a first abutment portion formed at the one end portion  
of said body portion; and  
a second abutment portion formed at the other end portion  
of the body portion to abut against the first abutment portion  
20 of the mating link member thereby limiting the rotation range  
of the mating link member.

15. An automobile comprising:  
a vehicle body;  
25 a moving structure slidably mounted on the vehicle body;

a cable installed between the vehicle body and the moving structure; and

a cable guide for guiding the cable;

wherein the cable guide includes a plurality of link  
5 members interconnected into a linear configuration; and

the cable guide includes a first section and a second section, the first section capable of being bent in a predetermined direction from a generally linear condition, the second section capable of being bent in an opposite direction  
10 opposite to the predetermined direction from a generally linear condition.

16. The automobile according to claim 15, wherein the moving structure is a slide door of the vehicle.

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